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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	MAIL STOP
Hiroshi Goto	Group Art Unit: 2626
Application No.: 09/288,966	Examiner: SCOTT A ROGERS
Filed: April 9, 1999	Confirmation No.: 8072
For: MULTI-TONE IMAGE PROCESSING METHOD AND APPARATUS	

DECLARATION UNDER 37 C.F.R. § 1.175

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

We, Hiroshi Goto and Satoshi Deishi, hereby declare as follows:

(1) We are citizens of Japan, having a respective post office address as follows:

Hiroshi Goto : c/o Konica Minolta Business Technologies, Inc.; 1-6-1, Marunouchi, Chiyoda-ku, Tokyo 100-0005, Japan.

Satoshi Deishi : c/o Konica Minolta Technology Center, Inc.; No. 1, Sakura-machi, Hino-shi, Tokyo 191-8511, Japan

(2) We believe that we are the original, first inventors of the invention described and claimed in the United States Patent No. 5,790,272 and in the specification and the claims of the Reissue Application filed herewith.

(3) We have reviewed and understand the contents of the specification and the claims of the Reissue Application.

(4) We hereby claim the benefit of foreign priority under 35 U.S.C. § 119 with respect to Japanese Patent Application No. 5-259691, filed on October 18, 1993.

Application No. Unassigned
Attorney's Docket No. 018655-773

(5) We acknowledge the duty to disclose information that we are aware of which is material to the examination of this Reissue Application in accordance with 37 C.F.R. § 1.56(a).

(6) We believe the original patent to be partly inoperative or invalid by reason of the patentee claiming more or less than the patentee had the right to claim in the patent. Specifically, Applicants failed to include the subject matter of claims 29-36 which are included in this reissue application. In addition, claim 24 includes an error at line 10 of the printed patent, wherein the term "lighter" should have been "darker". And, claims 1-16 and 25-28 are canceled.

(7) All errors which are being corrected in this reissue application up to the time of filing of the declaration on April 9, 1999 arose without any deceptive intent on the part of the Applicants.

(8) Every error in the patent which was corrected in the present reissue application, and is not covered by the prior declaration submitted in this application, arose without any deceptive intent on the part of the Applicants.

(9) The undersigned declare further that all statements made herein are of our own knowledge and are true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

By: Hiroshi Goto
Hiroshi Goto
Date: Sep. 19, 2006

By: Satoshi Deishi
Satoshi Deishi
Date: Sep. 8, 2006

29. A multi-tone image processing apparatus for converting multi-tone image data representing a tone level of a multi-tone image to binary image data, said apparatus comprising:

a memory which stores a plurality of patterns representing a plurality of tone levels, respectively, each of said plurality of patterns having effective cells and non-effective cells and defining a number of effective cells and positions of effective cells within a specific range, wherein at least one of the patterns has a larger number of effective cells than another of the patterns that represents a darker tone level within the specific range; and

a converter which specifies one of said plurality of patterns stored in said memory according to the tone level of the multi-tone image data to be converted and converts the multi-tone image data to the binary image data based on the specified pattern.

30. A multi-tone image processing apparatus as claimed in claim 29, wherein each of said plurality of patterns is constituted by a matrix in which each element of an m*m square matrix is divided into k cells in a row directions.

31. A multi-tone image recording apparatus comprising:

a memory which stores a plurality of patterns representing a plurality of tone levels, respectively, each of said plurality of patterns having effective cells and non-effective cells and defining a number of effective cells and positions of effective cells within a specific range, wherein at least one of the patterns has a larger number of effective cells than another of the patterns that represents a darker tone level within the specific range;

a converter which specifies one of said plurality of patterns stored in said memory according to the tone level of the multi-tone image data to be converted and

converts the multi-tone image data to the binary image data based on the specified pattern; and

a printer which prints the image according to the binary image data converted by said converter.

32. A multi-tone image recording apparatus as claimed in claim 31, wherein said converter includes an X-address counter, a Y-address counter and a Z-address counter, said Z-address counter specifying one of said patterns in the memory, and the X-address counter and the Y-address counter specifying one of said cells of the specified pattern according to horizontal and vertical printing operations of said printer.

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33. A multi-tone image recording apparatus as claimed in claim 31, wherein said printer includes a light source which emits a light beam, a driver which drives said light source based on the binary image data, an image carrier which moves in a vertical direction, and a deflector which deflects said light beam in a horizontal direction and scans said image carrier to form an image on said image carrier.

34. A multi-tone image recording apparatus as claimed in claim 33, wherein said converter includes an X-address counter, a Y-address counter and a Z-address counter, said Z-address counter specifying one of said patterns in the memory, and the X-address counter and the Y-address counter specifying one of said cells of the specified pattern according to horizontal and vertical scanning operations of said printer.

35. A multi-tone image recording apparatus for recording an image based on multi-tone image data representing tone levels on an image, said recording apparatus comprising:

a converter which converts multi-tone image data into recording data so that at least two tone levels are realized by differentiating positions of recording dots within a specific range while a lighter tone level has a larger number of recording dots than a darker tone level within the specific range; and

a printer which receives the recording data from said converter and records the recording dots based on the recording data.

36. A multi-tone image recording apparatus as claimed in claim 35, wherein said printer includes a light source which emits a light beam, a driver which drives said light source based on the recording data, an image carrier which moves in a vertical direction, and a deflector which deflects said light beam in a horizontal direction and scans said image carrier to form an image on said image carrier.

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